



PATENT
Atty. Dkt. AMAT/5975.P1/CPI/COPPER/BG

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Chang, et al.

Serial No.: 10/634,662

Confirmation No.: Unknown

Filed: August 4, 2003

For: Ruthenium Layer
Formation for Copper Film
Deposition

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## Group Art Unit: Unknown

**Examiner:** Unknown

MAIL STOP DD  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING  
 37 CFR 1.8  
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Renee Moss  
 Signature

Dear Sir;

## INFORMATION DISCLOSURE STATEMENT

The Applicants, and the Attorney who signs below on the basis of the information supplied by the inventor and the information in his file, submit herewith patents, publications, or other information of which they are aware, which may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR § 1.56.

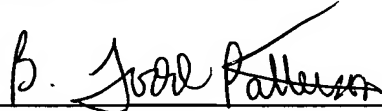
While the information submitted in this Information Disclosure Statement may be material pursuant to 37 CFR § 1.56, it is not intended to constitute an admission that any patent, publication, or other information referred to therein is prior art for this invention unless specifically designated as such.

In accordance with 37 CFR § 1.97, this Information Disclosure Statement is not to be construed as a representation that a search has been made or that no other possibly material information as defined under 37 CFR § 1.56(a) exists.

The patents and/or publications submitted herewith are set forth on the attached Form PTO-1449.

If the sum of \$180.00 is due under 37 CFR § 1.17(p) pursuant to § 1.97, the Commissioner is hereby authorized to charge this fee, and any other fee necessary to make this submission timely, to the Deposit Account No. 20-0782/APPM/5975.P1/BTP.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "B. Todd Patterson", is written over a horizontal line.

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|                                                                                      |         |                                              |                              |
|--------------------------------------------------------------------------------------|---------|----------------------------------------------|------------------------------|
| U.S. Department of Commerce, Patent and Trademark Office<br>(PTO Form 1449 modified) |         | Docket No.<br>AMAT/5975.P1/CPI/<br>COPPER/BG | Serial No.<br>10/634,662     |
| LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT                                  |         | Applicant<br>Chang, et al.                   | Confirmation No.:<br>Unknown |
| (Use several sheets if necessary)                                                    |         | Filing Date                                  | Group                        |
| Examiner                                                                             | Unknown | August 4, 2003                               | Unknown                      |

## U.S. Patent Documents

| *Examiner Initial |     | Document Number | Issue Date | Applicant(s) Name  | Class | Subclass | Filing Date If Appropriate |
|-------------------|-----|-----------------|------------|--------------------|-------|----------|----------------------------|
|                   | A1  | 6,617,634       | 09/09/03   | Marsh, et al.      | 257   | 300      | 02/12/02                   |
|                   | A2  | 6,610,568       | 08/26/03   | Marsh, et al.      | 438   | 250      | 08/23/01                   |
|                   | A3  | 6,597,029       | 07/22/03   | Kim, et al.        | 257   | 295      | 06/14/01                   |
|                   | A4  | 6,596,602       | 07/22/03   | Iizuka, et al.     | 438   | 396      | 01/24/02                   |
|                   | A5  | 6,580,111       | 06/17/03   | Kim, et al.        | 257   | 301      | 05/23/01                   |
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|                   | A9  | 6,423,619       | 07/23/02   | Grant, et al.      | 438   | 589      | 11/30/01                   |
|                   | A10 | 6,372,598       | 04/16/02   | Kang, et al.       | 438   | 399      | 06/16/99                   |
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## For Foreign Patent Documents

| *Examiner Initial |    | Document Number | Date     | Country | Class | Subclass | Translation              |                                     |
|-------------------|----|-----------------|----------|---------|-------|----------|--------------------------|-------------------------------------|
|                   |    |                 |          |         |       |          | YES                      | NO                                  |
|                   | B1 | 02/45167        | 06/06/02 | WO      | H01L  | 27/00    | <input type="checkbox"/> | <input type="checkbox"/>            |
|                   | B2 | 01/88972        | 11/22/01 | WO      | H01L  | 21/321   | <input type="checkbox"/> | <input type="checkbox"/>            |
|                   | B3 | 2001-237400     | 08/31/01 | JP      | H01L  | 27/108   | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|                   | B4 | 2001-111000     | 04/20/01 | JP      | H01L  | 27/105   | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

## OTHER ART

| *Examiner Initial |    | Including Author, Title, Date, Pertinent Pages, Etc. |
|-------------------|----|------------------------------------------------------|
|                   | C1 |                                                      |
|                   | C2 |                                                      |
|                   | C3 |                                                      |

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|                                                                                          |         |                                              |                              |
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| LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT<br>(Use several sheets if necessary) |         | Applicant<br>Chang, et al.                   | Confirmation No.:<br>Unknown |
| Examiner                                                                                 | Unknown | Filing Date<br>August 4, 2003                | Group<br>Unknown             |

## U.S. Patent Documents

| *Examiner Initial |     | Document Number | Issue Date | Applicant(s) Name | Class | Subclass | Filing Date If Appropriate |
|-------------------|-----|-----------------|------------|-------------------|-------|----------|----------------------------|
|                   | A1  | 5,372,849       | 12/13/94   | McCormick, et al. | 427   | 253      | 01/18/94                   |
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|                   | A5  | 2002/0121697    | 09/05/02   | Marsh             | 257   | 751      | 04/30/02                   |
|                   | A6  | 2002/0102810    | 08/01/02   | Iizuka, et al.    | 438   | 396      | 01/24/02                   |
|                   | A7  | 2002/0081381    | 06/27/02   | DelaRosa, et al.  | 427   | 255.28   | 10/10/01                   |
|                   | A8  | 2002/0076881    | 06/20/02   | Marsh, et al.     | 438   | 250      | 02/12/02                   |
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|                   | A10 | 2002/0074577    | 06/20/02   | Marsh, et al.     | 257   | 250      | 02/12/02                   |
|                   | A11 | 2002/0028556    | 03/07/02   | Marsh, et al.     | 438   | 299      | 06/25/01                   |
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|                   | A14 | 2002/0000587    | 01/03/02   | Kim, et al.       | 257   | 295      | 06/14/01                   |
|                   | A15 | 2001/0054730    | 12/27/01   | Kim, et al.       | 257   | 301      | 05/23/01                   |

## Foreign Patent Documents

| *Examiner Initial |    | Document Number | Date | Country | Class | Subclass | Translation              |                          |
|-------------------|----|-----------------|------|---------|-------|----------|--------------------------|--------------------------|
|                   |    |                 |      |         |       |          | YES                      | NO                       |
|                   | B1 |                 |      |         |       |          | <input type="checkbox"/> | <input type="checkbox"/> |
|                   | B2 |                 |      |         |       |          | <input type="checkbox"/> | <input type="checkbox"/> |
|                   | B3 |                 |      |         |       |          | <input type="checkbox"/> | <input type="checkbox"/> |
|                   | B4 |                 |      |         |       |          | <input type="checkbox"/> | <input type="checkbox"/> |

## OTHER ART

| *Examiner Initial |    | Including Author, Title, Date, Pertinent Pages, Etc. |
|-------------------|----|------------------------------------------------------|
|                   | C1 |                                                      |
|                   | C2 |                                                      |
|                   | C3 |                                                      |

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